



Toshiba introduces two sine-wave drive controllers for three-phase BLDC motors

Devices reduce noise and increase control efficiency regardless of motor type

Düsseldorf, Germany, 3rd February 2026 – Toshiba Electronics Europe GmbH (“Toshiba”) has launched two sine-wave pulse width modulated (PWM) drive controllers – TC78B043FNG and TC78B043FTG – for three-phase brushless DC (BLDC) motors, which can support both surface permanent magnet (SPM) and interior permanent magnet (IPM) motor types with low noise and high efficiency.

In recent years, there has been an increasing trend to use IPM types in preference to SPM types for three-phase BLDC motors to achieve low cost, high output, and high torque. Typical applications include home appliances such as air conditioners and air purifiers, as well as a wide range of industrial equipment. However, IPM motors are prone to generating vibration and noise, so motor controllers that reduce noise and enhance control efficiency are in high demand.

The newly released devices incorporate a high-resolution sine-wave drive and support sine-wave start-up, which helps to reduce vibration and noise. In addition, according to the characteristics and usage of the motor, various speed settings can be programmed into the built-in non-volatile memory (NVM) via the Serial Peripheral Interface (SPI). This capability allows high-efficiency motor control by adjusting parameters such as lead angle control.

A key difference between the two devices is that the NVM in the TC78B043FNG comes pre-programmed with the initial speed profile settings for common motors. This negates the need to manually program or configure it further before using it, accelerating development time. Furthermore, the TC78B043FNG has four terminals: FGC terminal, LATYPE terminal, LAOFS terminal, and LA terminal. The voltage settings of these terminals also allow more detailed readjustment of motor control parameters on the NVM without the SPI interface, such as motor lead angle control.

Operating from a supply ranging from 6V to 23V, these motor controllers perform over a wide temperature range from -40°C to +115°C. They also integrate thermal shutdown, under voltage lockout, current limiter, over current detection, and lock protection. Both devices include built-in 5V regulators, providing a stable supply for external components such as Hall sensors or logic circuits, reducing the need for an additional voltage regulator in the system design.

The TC78B043FNG is housed in the widely used HTSSOP28 (6.3mm x 9.9mm) package, making it easy to mount on the board due to its lead package. On the other hand, the TC78B043FTG is housed in a compact, leadless WQFN20 (3.0 x 3.0mm) package, enabling miniaturisation of the circuit board and mounting in limited spaces.

Further information about both devices can be found here:

[TC78B043FNG](#)

[TC78B043FTG](#)

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About Toshiba Electronics Europe

[Toshiba Electronics Europe GmbH](#) (TEE) offers European consumers and businesses a wide variety of hard disk drive (HDD) products plus semiconductor solutions for automotive, industrial, IoT, motion control, telecoms, networking, consumer and white goods applications. Next to HDDs, the company's broad portfolio encompasses power semiconductors and other discrete devices ranging from diodes to logic ICs, optical semiconductors as well as microcontrollers and application-specific standard products (ASSPs), amongst others.

In addition, TEE also offers SCiB™ battery cells and modules with lithium titanium oxide (LTO) for heavy-duty applications.

TEE has its headquarters in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom providing marketing, sales and logistics services.

Visit Toshiba's websites at www.toshiba.semicon-storage.com, www.scib.jp/en and www.toshiba-tmat.co.jp/en/ for further company and product information.

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